

TECHNICAL MEMORANDUM
Stockpile Sampling Plan for PCB Characterization
Stockpile #1 and Stockpile #3
25 Pace Boulevard, Warwick, Rhode Island
March 28, 2013

ENVIRON International Corporation (ENVIRON) is pleased to present this scope of work for stockpile characterization activities to be completed in support of the Sam's Club project at 25 Pace Boulevard, Warwick, RI (the "Site"). This plan has been prepared in accordance with the sampling strategy developed in consultation with U.S. Environmental Protection Agency (USEPA) Region I. Verbal and written communication with the USEPA and Rhode Island Department of Environmental Management (RIDEM) has been ongoing regarding the occurrence of PCBs in three existing soil stockpiles at the Site.

The purpose of this sampling program is to provide additional PCB characterization of Stockpiles #1 and #3 to facilitate offsite disposal plans. A site plan showing the location of the stockpiles is provided as **Figure 1**.

On January 15, 2013, ENVIRON issued to USEPA and RIDEM a technical memo entitled, "*Supplemental Information/Disposal Plan, Existing Soil Stockpiles*", which discussed how excavated material was stockpiled on the Site, and detailed PCB characterization activities completed to date. In response to this technical memo, USEPA determined that Stockpile #2 contains PCB concentrations <50 ppm and therefore can be disposed as PCB Remediation Waste <50 ppm. Therefore, no additional sampling of Stockpile #2 is proposed. However, USEPA indicated that additional characterization is needed for Stockpiles #1 and #3 to enable their formal determination relative to the 50 ppm threshold and USEPA acceptable disposal options.

Based on verbal guidance provided by Ms. Kim Tisa of USEPA during a conference call with ENVIRON and Mr. Shannon Daigle of Woodard & Curran (landlord's representative) on March 8, 2013, and follow up discussions with Mr. Daigle on March 15, 2013, ENVIRON has developed a sampling/analytical regimen that complies with USEPA requirements. Details related to the proposed scope of work are provided below.

PROPOSED SCOPE OF WORK

The following sections describe the current proposed supplemental characterization activities.

I. Mobilization Activities

In order to facilitate investigation activities, ENVIRON will complete the following activities, consistent with regulatory requirements and best management practices:

- Public Notification – In accordance with RIDEM *Remediation Regulations*, Section 7.07(A)(i), ENVIRON will complete the public notification requirements prior to the start of stockpile sampling activities;
- Health and Safety Plan (HASP) – ENVIRON will develop a HASP for usage by all personnel and subcontractors during stockpile sampling activities at the Site;
- Coordination of Subcontractors - ENVIRON will contract with a RI-Licensed soil boring contractor (OSHA HAZWOPER certified) and RI-certified laboratory required for soil sampling; and
- Subsurface Utility Marking – Although stockpile sampling is not a subsurface investigation, subsurface utilities are currently present beneath and around Stockpile #1. Therefore, in order to ensure that subsurface utilities are not damaged, ENVIRON will contact the Water and Sewer Department and 811/Dig Safe for utility mark out, and also review as-built utility drawings. This activity is conservatively being performed by ENVIRON in case the driller inadvertently over-drills through the limits of the stockpile and into the subsurface.

II. Stockpile Sampling Activities

The following subsections provide a general overview of the stockpile sampling program and a detailed description of the sampling activities to be completed.

a) Sampling Program Overview

The polyethylene sheeting on top of the stockpiles will be temporarily removed in the immediate vicinity of the work area(s), prior to initiation of sampling activities and replaced upon completion of sampling at the end of each work day.

Test borings will be advanced at Stockpile #1 and Stockpile #3. Test borings are proposed to be completed using direct push methods (Geoprobe drill rig and/or hand tools [e.g., Bosch hammer drill]). A Geoprobe drill rig will be used to access the “less steep” slopes of the stockpile, while hand tooling may be required for soil borings on steeper slopes. A cherry picker lift with basket and safety harness may also be utilized by the drilling contractor to provide a stable work environment when using direct push and/or hand tooling.

Stockpile #1 and #3 sampling regimen is as follows:

- Stockpile #1 is divided into seven (7) sections, labeled A through G, as shown on **Figure 2**. Within each section, the stockpile is divided into vertical tiers (up to 3 feet thick) which are to be known as “cells” (i.e., A1, A2, A3, etc.). Cross-sections showing each of the cells in Stockpile #1 are provided on **Figure 2**.
- Stockpile #3, is divided into four (4) sections, labeled A through D, as shown on **Figure 3**. Similar to Stockpile #3, each section is divided into vertical tiers or “cells” (up to 3 feet thick). Cross-sections showing each of the cells in Stockpile #3 are provided on **Figure 3**.
- As directed by the USEPA, soil samples will be collected and submitted for laboratory analysis based on a composite sampling regimen and soil samples will be collected from each cell for PCB analysis.
- Based on the relative size of each cell, three or four sample aliquots will be composited to generate a single distinct representative sample for each cell. These distinct representative samples will be submitted for laboratory analysis. For smaller sized cells (e.g., A6, D6), 3 soil samples will be collected, and for larger sized cells (e.g., A1) 4 soil samples will be collected. The number of samples proposed for each cell is shown in the cross sections on **Figures 2 and 3** as defined in the legend and is also provided on **Table 1**.
- As directed by USEPA, the following composite/discrete sampling program procedure will be used for comparing the results of laboratory analyses relative to the 50 ppm threshold.
 - The PCB concentration detected, by laboratory analysis, in each distinct composite sample collected from each cell, will be multiplied by the number of aliquots used to make up that distinct composite sample. For example, for a cell with 3 aliquot samples composited, the PCB analytical result for the composite sample will be multiplied by 3 and then compared to the 50 ppm threshold. If the resultant concentration in the composite is ≤ 50 ppm, then all of the soil contained within the cell will be considered PCB Remediation Waste ≤ 50 ppm and no further laboratory analysis will be performed. However, if the resultant concentration of the composite sample is > 50 ppm, then additional laboratory analysis will be performed, as described below.
 - Discrete Aliquot Samples: If the resultant concentration in the composite is > 50 ppm (after applying the aliquot multiplier), then each of the individual aliquots will be analyzed. If the concentration in all of the aliquots collected from the same cell from are ≤ 50 ppm, then all of the soil contained within the cell will be considered PCB Remediation Waste ≤ 50 ppm. However, if any of the aliquots are > 50 ppm, then the soil contained within the entire cell will be considered PCB Remediation Waste > 50 ppm, as the sampling protocol described above is not considered sufficient by USEPA for subdividing cells.

Should the subdividing of soil cells into >50 and ≤50 ppm concentrations be desired, additional discussions will be required with USEPA to explore this option.

All test boring locations will be surveyed to determine elevation and latitude/longitude coordinates. This survey data will allow for all sampling locations to be plotted on figures in the summary report with a high degree of accuracy.

A limited amount of investigative derived waste (contaminated soil) will be generated during the performance of drilling activities, and all soil cuttings will be placed into a 55-gallon drum(s). The drum(s) will be properly labeled with regards to PCB content and will remain covered onsite within a secure area until offsite disposal is arranged. Decontamination water generated during the decontamination of construction and sampling equipment will be drummed, covered and characterized for future disposal.

Upon completion of sampling activities, the stockpiles will be appropriately re-secured by a subcontractor to ENVIRON via polyethylene sheeting, hay bales, fencing and signage, etc., as appropriate.

b) Soil Sampling Protocols

Equipment and Subcontractors - It is anticipated that subsurface investigation activities will include sampling via direct push methods (Geoprobe drill rig and/or hand tools).

Certified Technicians - All sampling activities will be completed by OSHA-40 hour certified field technicians and overseen by a field operations manager with no less than 10 years of experience in completing environmental investigations.

Sampling Frequency – 3 or 4 discrete soil samples (depending on size of cell) will be submitted from each cell to the analytical laboratory. The soil samples will be spatially distributed across the cell with an approximate even distribution. ENVIRON will request that the laboratory composite samples from each cell and run these for PCB analysis. **Table 1** provides the proposed stockpile sampling frequency with an estimated number of discrete and composite samples.

Analytical Parameters – All soil samples will be submitted for laboratory analysis for PCBs via Method 8082A/3540C (soxhlet extraction).

Quality Control - For every 20 soil samples analyzed, 1 duplicate sample, and 1 matrix spike/matrix spike duplicate (MS/MSD) will also be analyzed for Quality Assurance/Quality Control (QA/QC) purposes. This level of QA/QC is consistent with USEPA protocol. The laboratory will be instructed by ENVIRON to extract a sufficient volume to analyze both primary and secondary (duplicate) samples.

Field Methods for Sampling - During the investigation activities, the following sampling methodologies will be employed, consistent with industry-wide accepted standard of practice.

- For the direct push sampling activities (Geoprobe drill rig and/or hand tools), advancement will continue to the bottom of the stockpile at original grade level. Prior to the advancement of each soil boring, ENVIRON will complete an elevation survey to determine the height of each stockpile.
- Upon consecutively advancing acetate sleeves to the bottom of the stockpile, the liners will be cut open and soil samples from each cell will be collected.
- All soil samples will be placed in laboratory provided containers, labeled by ENVIRON personnel, and placed in a cooler with ice. At the end of each workday, the samples will then be delivered directly to the laboratory by ENVIRON or handed-off to a courier under a completed chain-of-custody.
- Test boring and individual composite aliquot sample locations will be measured in the field for appropriate documentation and reporting.

Onsite Health & Safety and Decontamination - Onsite health and safety assumes modified Level D protection (Tyvek and booties). Decontamination of all equipment contaminated by PCBs will be performed in accordance with 40 CFR 761.79 *Decontamination Standards and Procedures*.

III Reporting

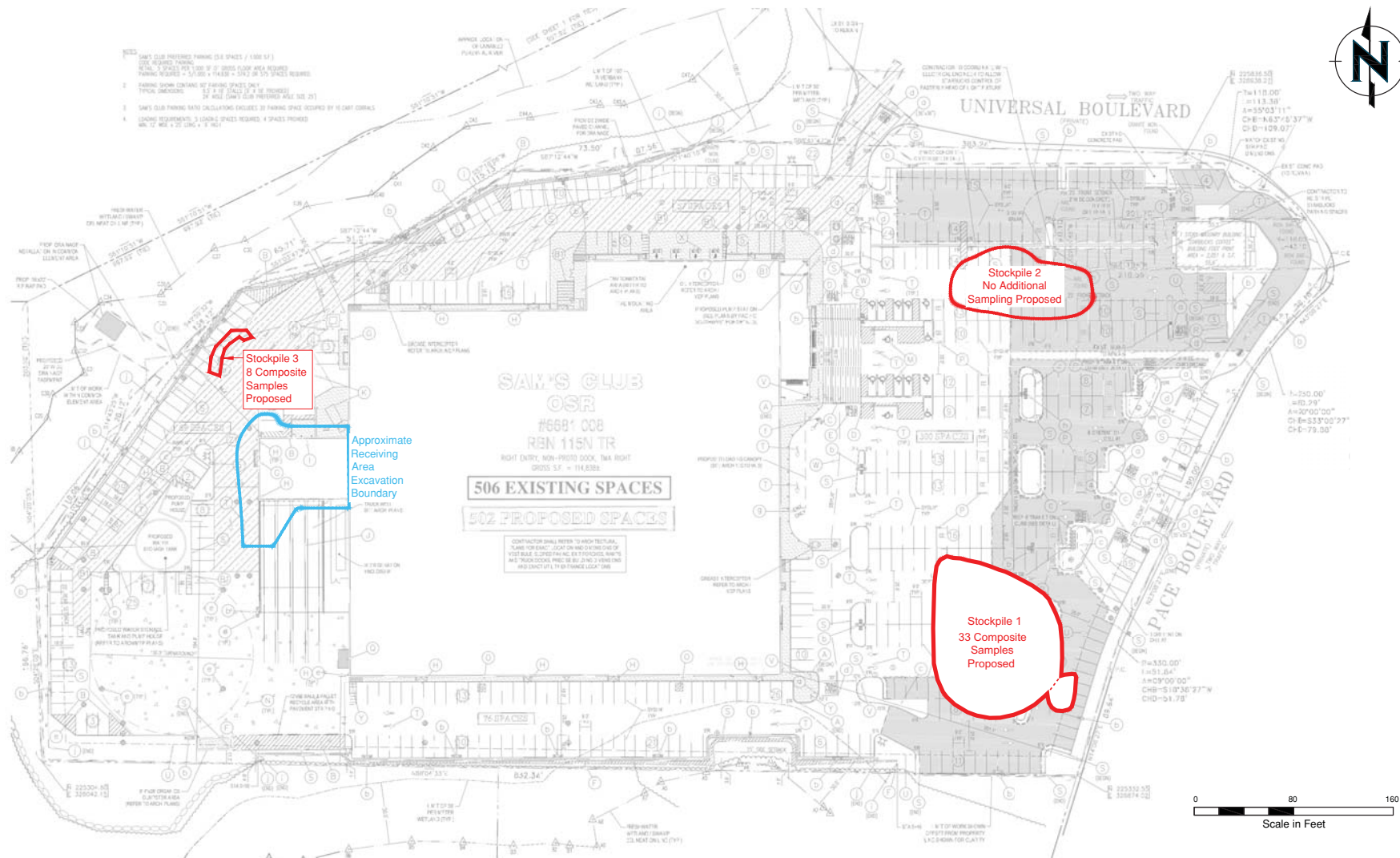
Upon completion of stockpile sampling activities, ENVIRON will prepare and submit a summary report presenting the results of this sampling program to USEPA to facilitate determination of acceptable offsite disposal options. Based on the results of sampling and USEPA determination of acceptable offsite disposal options, ENVIRON will prepare a disposal plan for USEPA approval.

IV Estimated Schedule

The stockpile sampling program can commence immediately with an approximate schedule listed below:

- | | |
|---|----------|
| 1. Field Work Coordination and Public Notice | Week 1 |
| 2. Soil Boring Installation and Receipt of Data | Week 2-3 |
| 3. Preparation of Summary Report for issue to USEPA | Week 3-4 |

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Soil Stockpile Locations
25 Pace Boulevard
Warwick, Rhode Island

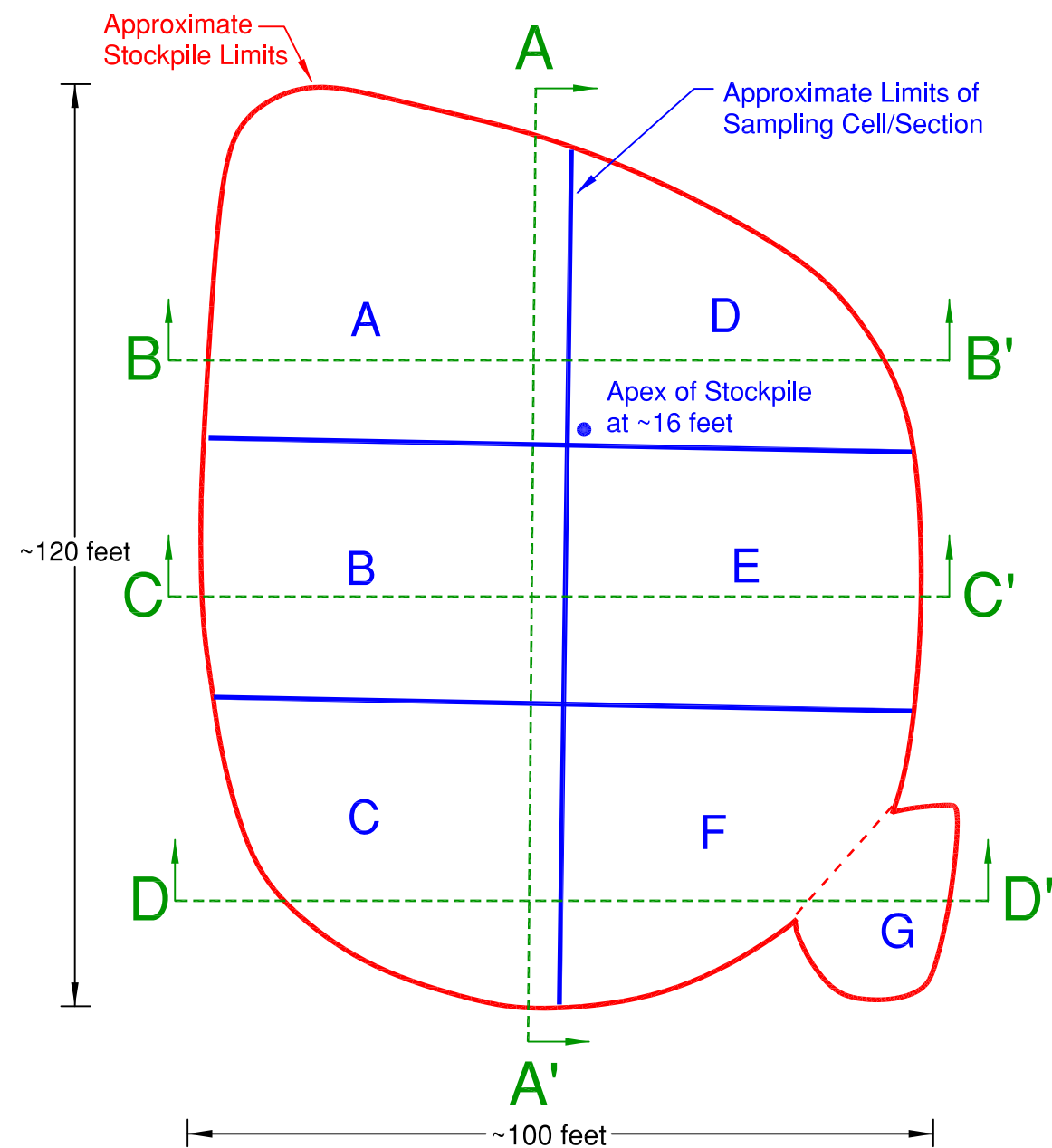
Figure
1



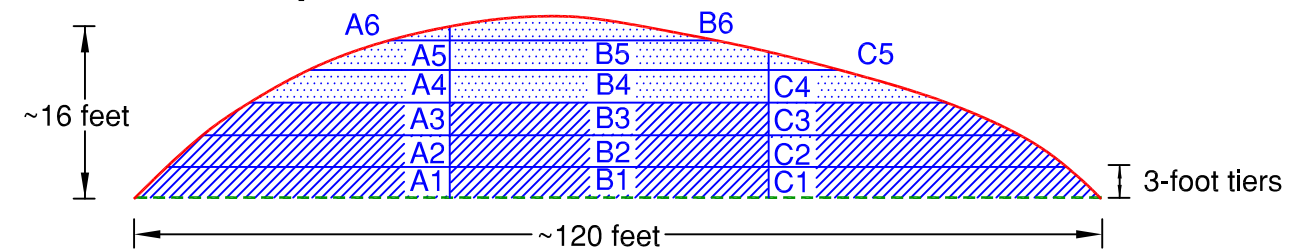
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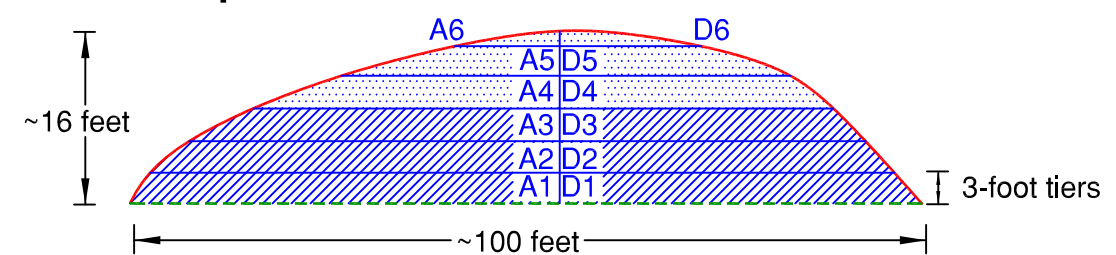
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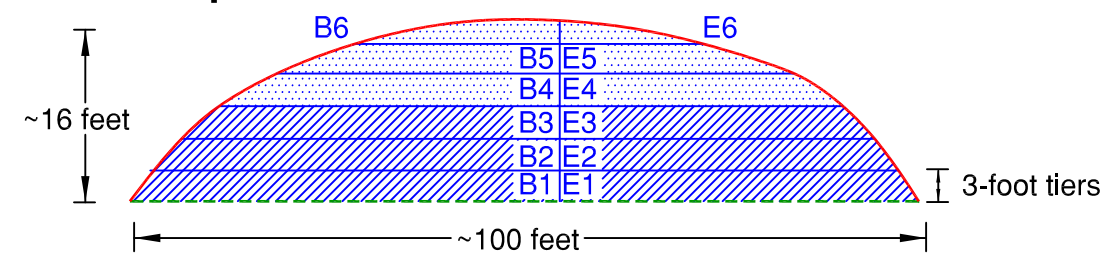
Stockpile #1 Cross-Section A-A'



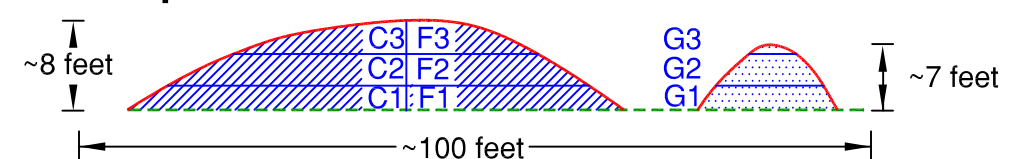
Stockpile #1 Cross-Section B-B'



Stockpile #1 Cross-Section C-C'



Stockpile #1 Cross-Section D-D'



LEGEND

- 3 aliquot samples are proposed to be composited into 1 sample for analysis
- 4 aliquot samples are proposed to be composited into 1 sample for analysis
- Approximate stockpile limits

Note: Not to Scale



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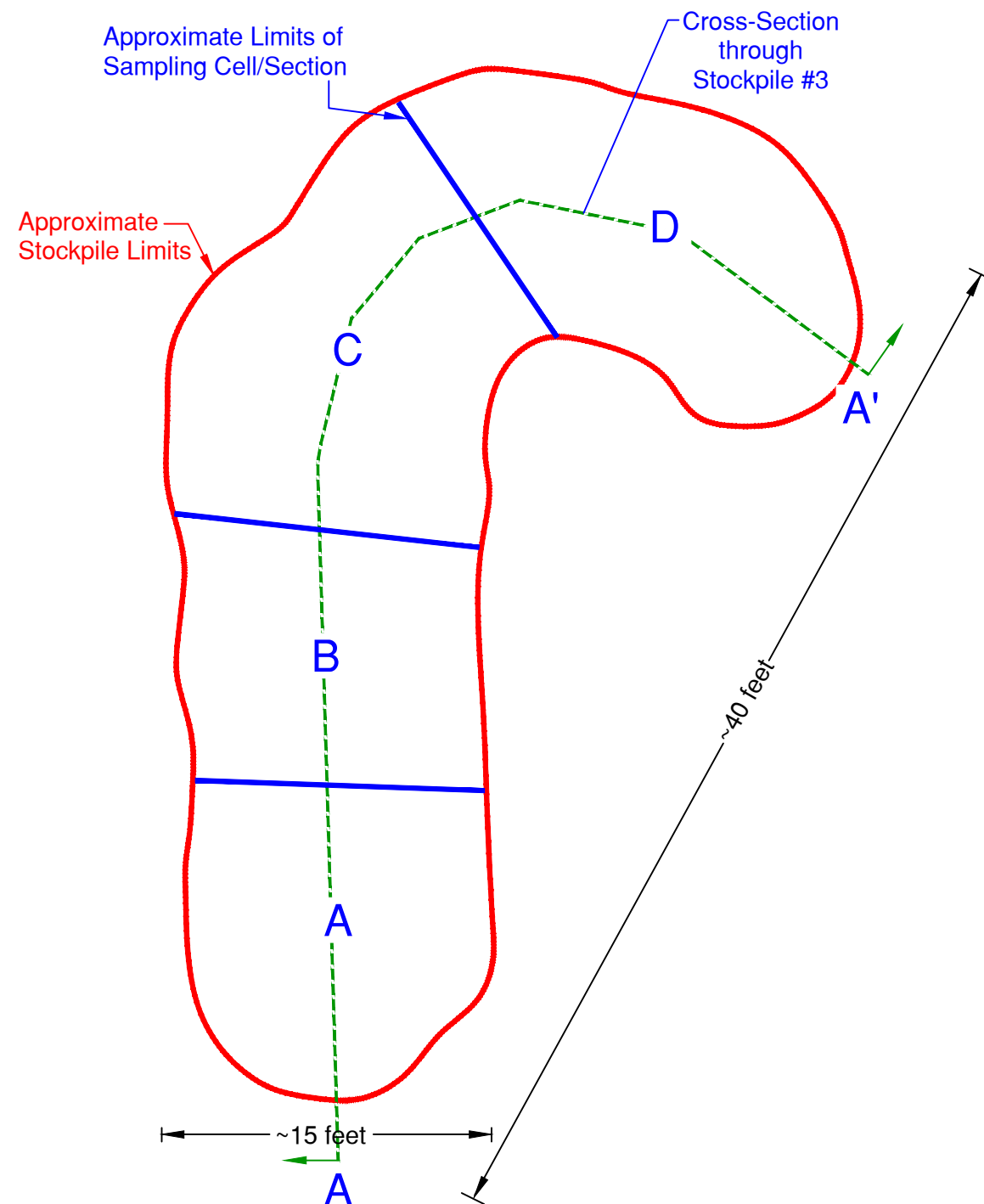
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Stockpile #1 Sampling Details

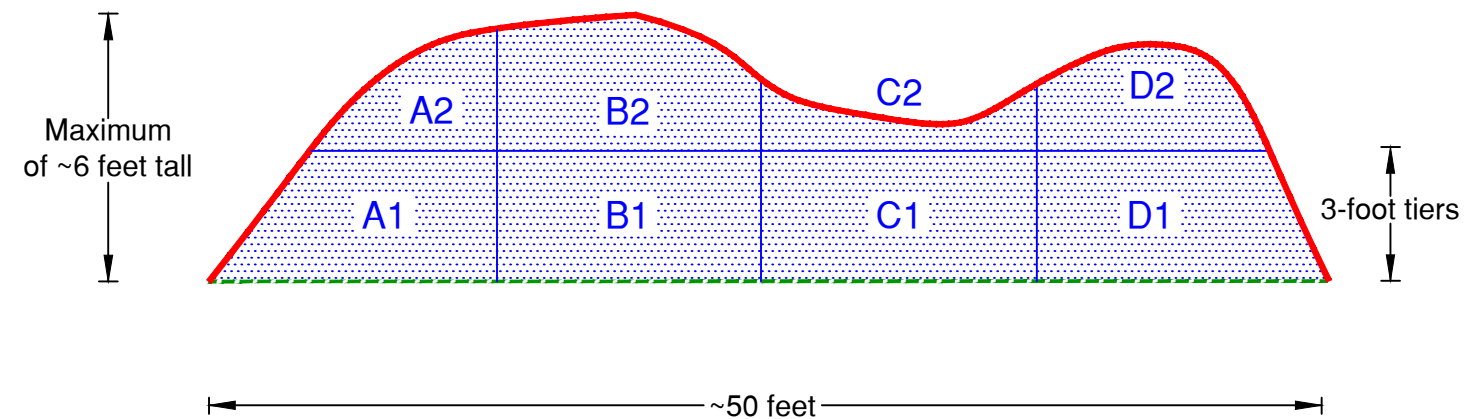
25 Pace Boulevard
Warwick, Rhode Island

Figure
2

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Stockpile #3 Cross-Section A-A'



LEGEND

3 aliquot samples are proposed to be composited into 1 sample for analysis

Approximate stockpile limits

Note: Not to Scale



Stockpile #3 Sampling Details
25 Pace Boulevard
Warwick, Rhode Island

Figure
3

Table 1 - Proposed Stockpile Sampling Frequency
25 Pace Boulevard, Warwick, RI

Stockpile #1		
Cell	# of Discrete Samples to be Composited	# of Composite Samples
A1	4	1
A2	4	1
A3	4	1
A4	3	1
A5	3	1
A6	3	1
B1	4	1
B2	4	1
B3	4	1
B4	3	1
B5	3	1
B6	3	1
C1	4	1
C2	4	1
C3	4	1
D1	4	1
D2	4	1
D3	4	1
D4	3	1
D5	3	1
D6	3	1
E1	4	1
E2	4	1
E3	4	1
E4	3	1
E5	3	1
E6	3	1
F1	4	1
F2	4	1
F3	4	1
G1	3	1
G2	3	1
G3	3	1
TOTAL	117	33

Table 1 - Proposed Stockpile Sampling Frequency
25 Pace Boulevard, Warwick, RI

Stockpile #3		
Cell	# of Discrete Samples to be Composited	# of Composite Samples
A1	3	1
A2	3	1
B1	3	1
B2	3	1
C1	3	1
C2	3	1
D1	3	1
D2	3	1
TOTAL	24	8